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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,637	04/11/2001	Alfons Gail	10537/96	1822
26646	7590	09/14/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			KYLE, MICHAEL J	
			ART UNIT	PAPER NUMBER
			3676	

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,637

Applicant(s)

GAIL ET AL.

Examiner

Michael J Kyle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 15.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Werner (WO98/53229) in view of Dierker et al (U.S. Patent No. 6,471,212). With respect to claims 1 and 2, Werner discloses a brush seal comprising a bristle housing (2) including a cover plate (3) and a supporting plate (4), bristles (5), circumferential surface (9), two side surfaces (vertical portions of 3 and 4), a first positioning arrangement on a side surface (portion of 4 abutting 2), and a second positioning arrangement on a rotor (portion of 2 abutting 4). Werner fails to disclose the first and second positioning arrangements to be configured to interact with each other in a positive locking manner providing definite positioning of the bristle housing.
3. Dierker et al teaches a brush seal comprising first and second positioning arrangements (13 and 12, respectively), in order to secure the brush seal device in the housing. The first positioning arrangement is a projection and the second positioning arrangement is a recess. The structure of Dierker et al inherently prevents incorrect mounting and provides definite positioning of the entire bristle housing. The first and second positioning arrangements interact in a positive locking manner. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the first and second positioning

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arrangements of Werner as taught by Dierker et al in order to simply and securely attached the brush seal housing to the stator.

4. With respect to claims 3-5, Werner discloses the cover plate and supporting plate are formed by non-cutting shaping and deep drawing (column 1, line 66). The bristle housing (2) is formed by flanging the cover plate and supporting plate.

5. With respect to claims 7 and 8, the combination of Werner and Dierker et al discloses the first positioning arrangement includes an integral projection (13 of Dierker et al) that projects beyond at least one side surface, and the second positioning arrangement includes a recess (12 of Dierker et al) formed in the stator. The projection is engaged in the recess. Because the projection is integral with the cover plate, it stands to reason that it is formed during the forming of the cover plate during the non-cutting shaping of the cover plate described in Werner.

6. With respect to claim 9, Werner discloses a brush seal comprising a bristle housing (2) including a cover plate (3) and a supporting plate (4), bristles (5), circumferential surface (9), two side surfaces (vertical portions of 3 and 4), a first positioning arrangement on a side surface (portion of 4 abutting 2), and a second positioning arrangement on a rotor (portion of 2 abutting 4). Werner fails to disclose the first and second positioning arrangements to be configured to interact with each other in a positive locking manner providing definite positioning of the bristle housing. Werner also fails to disclose that the first positioning arrangement includes an integral projection that is either lenticular or conical, the second positioning arrangement includes a recess, and that the integral projection is engageable in the recess.

7. Dierker et al teaches a brush seal comprising first and second positioning arrangements (13 and 12, respectively), in order to secure the brush seal device in the housing. The first

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positioning arrangement is a projection and the second positioning arrangement is a recess. The structure of Dierker et al inherently prevents incorrect mounting and provides definite positioning of the entire bristle housing. The first and second positioning arrangements interact in a positive locking manner. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the first and second positioning arrangements of Werner as taught by Dierker et al in order to simply and securely attached the brush seal housing to the stator. Furthermore, it would be obvious to one having ordinary skill in the art to make the projection of a lenticular shape. A lenticular shape would eliminate the square corners that are found on Dierker. By eliminating corners, stress concentrations are reduced, thereby improving the durability of and increasing the work life of the piece. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the projections to be lenticular in shape, which reduces stress concentrations thereby improving the durability and work life of the piece.

8. With respect to claim 10, Werner discloses the cover plate to have a flanged section (7) and the supporting plate to have an axial section (portion of 4, below 7, extending left to right). The axial section extends beyond one of the side surfaces and is disposed at an end of the cover plate close to the circumferential surface. The flanged section encloses a free end of the axial section projecting radially beyond the free end of the axial section and forming an undercut (at 6).

9. With respect to claim 11, Werner discloses the flanged section (7) to include an inner side surface forming the undercut, the inner side surface being disposed at a distance from the side

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surface of the supporting plate. The portion of the inner side surface that forms the under cut is at a distance from the supporting plate.

10. Claims 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Werner in view of Dierker et al and Nakamura et al (U.S. Patent No. 6,106,190). Werner discloses a brush seal comprising a bristle housing (2) including a cover plate (3) and a supporting plate (4), bristles (5), circumferential surface (9), two side surfaces (vertical portions of 3 and 4), a first positioning arrangement on a side surface (portion of 4 abutting 2), and a second positioning arrangement on a rotor (portion of 2 abutting 4). Werner fails to disclose the first and second positioning arrangements to be configured to interact with each other in a positive locking manner providing definite positioning of the bristle housing. Werner also fails to disclose the first positioning arrangement to include a spot weld that projects beyond the circumferential surface, and the second positioning arrangement to be recess.

11. Dierker et al teaches a brush seal comprising first and second positioning arrangements (13 and 12, respectively), in order to secure the brush seal device in the housing. The first positioning arrangement is a projection and the second positioning arrangement is a recess. The structure of Dierker et al inherently prevents incorrect mounting and provides definite positioning of the entire bristle housing. The first and second positioning arrangements interact in a positive locking manner. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the first and second positioning arrangements of Werner as taught by Dierker et al in order to simply and securely attached the brush seal housing to the stator.

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12. Nakamura teaches a projection (66b in figure 5b) on a first positioning element (66b) which fits into a recess (62b) of the second positioning element (60) to prevent the two elements from rotating with respect to one another. Nakamura et al further discloses an embodiment having a welded projection (W in figure 6b) that serves the same purpose as the projection in figure 5b. The projection (W), formed during a non-cutting shaping process also projects beyond one side surface and is lenticular in shape as claimed. Both projections function to prevent the first positioning arrangement, or the projection, from rotating with respect to the second positioning arrangement (60). Inasmuch as the references disclose these elements as art recognized equivalents, it would have been obvious to one of ordinary skill in the art to substitute one for the other. In re Fout, 675 F.2d 297, 301, 213 USPQ 532, 536 (CCPA 1982). One skilled in the art would incorporate such projections with the motivation to prevent the first positioning element from rotating with respect to the second positioning element.

13. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Werner in view of Deirker et al as applied to claim 1 above, and further in view of Reisinger et al (U.S. Patent No. 5,066,024). Werner and Dierker et al fail to disclose the fastening methods as claimed. Reisinger teaches a pair of holes (7 and corresponding holes in the housing) configured to receive a fastener for the purpose of providing a simple and detachable connection while still maintaining the operability of the seal (column 1, line 60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate holes and

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fasteners to Werner's invention for the purpose of providing a simple and detachable connection to other components.

14. Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Werner in view of Dierker et al as applied to claim 1 above, and further in view of Hanrahan (U.S. Patent No. 5,066,025). The combination of Werner and Dierker et al fails to disclose angled bristles. Hanrahan teaches that it is known in the art that bristles are usually located at an angle with respect to the radius for the purpose of maintaining proper sliding relationship with the rotor (column 1, lines 21-28). Where the range of article sizes disclosed in the prior art envelops the recited range, and there is no showing of criticality of the recited range, such recited range would have been obvious to one of ordinary skill in the art. In re Reven, 390 F.2d 997, 156, USPQ 679 (CCPA 1968).

Response to Arguments

15. Applicant's arguments filed May 13, 2004 have been fully considered but they are not persuasive. With respect to claims 1-5 and 7 to 11, applicant argues that the combination of the Werner and Dierker et al fails to disclose the first positioning arrangement and second positioning arrangement are configured to interact with one another in a positive locking manner and provide definite positioning of the bristle housing. Examiner respectfully disagrees.

16. Examiner notes that the limitations beginning with "configured to interact" and "to provide definite positioning", recited in the last paragraphs of claims 1 and 6, are functional limitations. These functions are provided by the claimed structural limitations of a "first

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positioning arrangement” and a “second positioning arrangement”. In the combination of Werner and Dierker et al, Deirker provides for a first positioning arrangement 13 and a second positioning arrangement 12. Features 12 and 13 of Dierker et al meet all of the structural limitations of the first and second positioning arrangements as claimed. Because Deirker et al meets the structural limitations of claims 1 and 6, Dierker et al must only be capable of performing the claimed function. In this case, Dierker et al is not only capable, but does provide definite positioning of the bristle housing and prevents relative rotation and incorrect mounting of the entire brush seal. Examiner notes the arrangement in Deirker et al prevents incorrect mounting of the brush seal in that the brush seal can only be installed in a manner where it is perpendicular to the cover plate. If the brush seal was mounted at another angle (relative to the longitudinal axis of the housing or cover plate) the brush seal would provide to large of gap between the cover plate and the bristles, thus being mounted incorrectly. The arrangement of features 12 and 13 prevents this.

17. Applicant further argues that the brush seal of the Dierker et al can still be mounted backwards, such that the angled bristles are angled in the incorrect direction. Examiner notes that applicant has claimed no specific structure to prevent this arrangement from existing the present application. Specifically, a first and second positioning interacting in a positive interlocking manner as claimed does not preclude the brush seal from being mounted backwards.

18. With respect to dependent claims 6, 8, 9, and 12-14, applicant's arguments rely on the allegation that the rejection of the independent claims is improper because the combination of the Werner and Dierker et al fail to disclose all of the claimed elements. As discussed in the

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paragraph above, examiner disagrees with this argument. As such, the rejections of these claims are maintained.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

20. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Kyle whose telephone number is 703-305-3614. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 703-308-2978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mk

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